The Citrus Industry
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Issued Monthly
Representative of every interest
Representing no special interest

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WHY --- or «Why Not?»

By Joe Knight - Sans Souci Groves

Why do we not compete with California? Why can't we in Florida, who are engaged in citrus, compete with California; or rather, why don't we?

I think we could find, after a complete survey of our deplorable situation and looking back over our past history and performance, that our trouble is caused by three or four things, viz: inferior grades of fruit sold and unloaded to trucks and peddlers who distribute to markets competing with our good fruit; our combination grades; the getting away from our old standard boxes; and not overlooking of course, our persistent shipping of green, immature fruit.

A visit to any one of our big auction markets would very much enlighten and open the eyes of all of us engaged in the citrus industry. To look over the fruit on display on the auction piers, for instance in the New York auction market, and compare the very uniform grade and pack of California's fruit with the conglomerated mess of Florida's most ununiform pack of all kinds of grades, packs and varieties would impress one very definitely and thoroughly, without much study, what is the matter with our fruit situation. California ships a smaller box a longer distance to market and more than competes with us and commands a higher price for its product. There is nothing uniform or standard in the way of a fruit pack that goes out of Florida. Our combination grade is the biggest mistake ever attempted. Some houses pack a 60% first grade and 40% second grade; others vice versa, for a combination grade. Some houses have packed as high as an 80% first grade and 20% second grade, while other houses have actually packed a 20% first grade and 80% second grade for a combination, etc. There is no regularity in this kind of performance and no standard grade can result from such methods. Some of our packing houses have been and are packing their fruit under as many as ten to fifteen or more different brands, when certainly two or three brands are sufficient if any kind of a standard grade is to be maintained. It is not far short of a crime that boxes, other than old standard boxes, were ever adopted, into which fruit is packed and with the individual fruit unwrapped. We should never have gotten away from our old standard pack where each fruit is wrapped, insuring a much more attractive package and the package that the buyers and jobbers are all familiar with. I could never figure the sense of all these changes and the selling and unloading of our inferior grades of fruit when it is trucked to the markets and sold to jobbers right across the street from another who is handling first class fruit when such competition can only naturally cause lower prices for all concerned.

There is no system, order or sense in our kind of methods and performance. We are getting nowhere fast and consequently, on account of the above named reasons, the jobbers and dealers in the markets are very hesitant in wanting to handle Florida citrus because they don't know what to expect, what kind of a grade is coming next and cannot be assured as to any regular or standard margin of profit, and as a result are naturally and forcibly discriminating against Florida fruit and buying elsewhere where they can depend on order and system, some kind of a standard grade and pack and know what they are doing — what margins of profit they can bank on. This is nothing but sane, sound, business methods and judgment. Our whole Florida system and performance is just as wrong as it can be and we might as well right it and try to stabilize our Citrus Industry. I learned over fifteen years ago from Mr. Frank L. Skelly more than I have ever learned since from any source during my connection with the citrus business, the value of an absolute close standard grade and pack, monthly and yearly maintained, during his connection with the American Fruit Growers and their Blue Goose trade mark at that time, when he proved this by the fact that the distribution and selling of fruit under his direction always was assured of the top market price, always topped the market against all other packs. But now it sems that any and every kind of a grade and pack that can be thought of is put upon the

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Prospects Of A . . .

Citrus Aphid Infestation This Spring

By W. L. THOMPSON
Associate Entomologist, Citrus Experiment Station
Lake Alfred, Florida

This spring the prospects are very favorable for a medium-to-heavy infestation of aphids on citrus. Scattered colonies of aphids have been observed in groves where there has been succulent growth for six to eight weeks. The partial-to-total defoliation caused by the November freeze created favorable conditions for aphid increases. Due to cool weather during February the growth of healthy trees has been somewhat retarded which will result in succulent growth being present for the next six to eight weeks. Trees that were defoliated in November started to grow in December and January, and it was on this growth that a few scattered aphid colonies first became established. Aphids have also become established on many of the partially defoliated trees which now have succulent growth. A high percentage of trees either have not started to grow or have only pinhead growth, and it is on these trees that the aphid infestations may be quite severe. In many groves there are trees representing all three stages of growth, that is, trees that have foliage already hardened, trees with succulent growth, and trees that are still dormant or on which growth has just started.

The citrus aphid thrives best on succulent foliage. When the infested foliage starts to harden naturally or because of a heavy infestation of aphids, the young ones that are produced by the aphids feeding on the maturing foliage develop wings and are able to migrate to more succulent foliage on other trees. Young growth on defoliated limbs usually matures more quickly than normal growth which results in more generations of winged aphids and therefore a more general infestation over the grove where aphids have become established. Due to the succession of various stages of growth and the building up of a large population of winged ahpids, the trees that have a delayed spring growth are likely to be heavily infested. It should also be noted that during the last half of February and March the temperature and general weather conditions are ideal for rapid reproduction of aphids. During March it takes only five to six days for the citrus aphid to mature, so a light infestation can develop into a heavy one in a very short time.

To many growers the advisability of controlling aphids is questionable, but if the aphids are not checked a large percentage of leaves are likely to be curled, making an excellent breeding place for scales during the next two or three years besides limiting the normal function of the leaves. When the growth is unusually late in starting and there is an abundance of winged aphids, the buds are attacked and either killed or so stunted that only miniature curled leaves are formed which are of no functional value to the tree.

If aphid control is desired, a close examination for infestations should be made as soon as possible, especially in groves where some of the trees have been out in growth for two to three weeks or more. The opportune time to control aphids is while there is a light infestation and before many of the leaves have been curled. If control measures are delayed until the whole grove is heavily infested and the leaves are badly curled, it would be better not to spray the grove at all because of the low percentage of kill in curled leaves and the rapid reinfestation where a poor kill has been obtained.

For the control of citrus aphids, nicotine has proved to be one of the most effective aphicides. Nicotine sulfate 1-800 (1 pint per 100 gallons) and lime-sulfur 1-100 plus wettable sulfur with a good spreader used at the rate of 3 to 5 pounds per 100 gallons have been used with satisfactory results. By using a weak solution of lime-sulfur, a second application can be made later, if necessary with the same dilution, and the total amount of sulfur in the two sprays will not be any more than that in one spray ordinarily used at this time of the year. By using sulfur as a carrier for nicotine, an excellent control of rust mites can be obtained and the operation for aphid control is then not so expensive. One reason for recommending lime-sulfur as a carrier for nicotine sulfate is that it increases the effectiveness of the nicotine sulfate as a fumigant if the weather is not too windy. Oil and soap spreaders also can be used as carriers for nicotine but direct contact of the materials with the aphids is necessary to obtain a satisfactory kill, and this is very difficult in curled leaves. Satisfactory results can be obtained with a combined nicotine-sulfur spray by applying the material with a sprayer maintaining 500 to 600 pounds pressure and using either broom guns or any type of gun that will throw out a wide mist of spray. A wide mist of spray applied when walking fast or riding slowly usually effects a reasonably satisfactory control with a minimum amount of material. The calmer the weather, the more efficient the spray will be, but such an application is still more effective than a nicotine dust if there is any movement of air. A 3 per cent nicotine-lime dust gives satisfactory control if applied when the weather is calm and not too cool.

There are other aphicides on the market that can be used such as pyrethrum and rotenone, and for these products the dilutions recommended by the manufacturers should be used.

The writer would like to stress the point once more that if aphid control is attempted, the control measures should be started before the aphid infestation becomes severe and a high percentage of the leaves are curled.

All-Color, Sound Motion Picture Shown by Chilean Nitrate Co.

That plants, animals and humans have much in common from a nutrition standpoint is the theme of a new all-color, sound motion picture in two parts — "The Magic Desert" and "Vitamin Elements in Plant Feeding" — which was shown to a group of growers on Friday evening, January 17, at the Polk County Court House, Bartow, at 7:30 o'clock.

This new color picture, just released by the Chilean Nitrate Educational Bureau, Inc., is now being shown to audiences of growers and others interested in agriculture thru-

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One Hundred and Two Defendants Named In Fertilizer Indictments

"Fertilizer prices are lower than prices paid by farmers for other commodities and fluctuate widely," said Charles J. Brand, Executive Secretary and Treasurer of The National Fertilizer Association, in commenting on the indictment returned recently by a special grand jury which charged 102 individuals and corporations in the fertilizer industry with violations of the Federal anti-trust laws. The 64 corporations, two trade associations, and 36 officials were alleged to have conspired to fix prices and suppress competition in mixed fertilizers.

"An indictment or true bill," Mr. Brand reminded, "is not a verdict of guilty as so many people seem to think — it is in fact not even an indication of guilt. It is only a formal accusation made by at least 12 out of 23 grand jurors after an investigation conducted by the Government, at hearings where for the most part only the Government's side is heard. An adviser to the Anti-trust Division of the Department of Justice recently said in a report to the so-called Anti-Monopoly committee: 'Nominally the grand jury has the power to indict or refuse to indict; in reality it usually does the will of the prosecuting attorney into whose hands the real discretion has passed.' Even in such one-sided Government proceedings, the grand jury in this instance required one year before it decided that the fertilizer companies should be formally accused.

Prices Low and Fluctuating

"This charge of price-fixing comes to us in the face of the fact that over 800 independently operating fertilizer plants in this country have shown, according to the Government's own figures, a record of years of fluctuating prices and of very low prices," said Mr. Brand. "The latest U. S. Department of Agriculture figures show farmers are receiving 101 per cent of the 1910-14 average for what they sell, and are paying 122 per cent on the average for the commodities which they buy. For fertilizer, however, they pay only 96 per cent. If prices for fertilizer in 1940 had been as high as the average price of other things they buy, the farmer's fertilizer bill would have been $54,000,000 more. The Department of Agriculture further says that 'fertilizer prices as a percentage of the 1910-14 average are considerably lower than the prices of most commodities bought by farmers.'

"Fertilizer prices have been anything but rigid. They fell 39 per cent between 1929 and 1933 — this drop was greater than the all-commodity drop. Fertilizer prices have never been recovered to the extent that other prices have. The average price of the most widely used grade was $22.40 in 1929; $14.77 in 1933, and $17.12 in 1938.

Profits Low—Farmers' Returns High

"If this widely scattered industry had the power to fix prices, it seems that they would have fixed them at profitable figures," stated Mr. Brand. "As it stands, the manufacturer got a profit of only 1¼ cents out of each dollar the farmer spent for fertilizer. Roughly this was 31 cents a ton on a $25.00 per ton fertilizer. This is based on the latest figures released by the Bureau of Internal Revenue on income tax returns filed over a ten-year period. A recent Securities and Exchange Commission report for 21 large corporations showed net profits amounting to 19½ per cent of sales — somewhat different from 1¼ per cent in the fertilizer industry.

"The return the farmer receives is in sharp contrast with the industry's — a fact which we do not deplore. According to a survey based on personal interviews with 32,000 farmers, they received an average return of $3.60 for each dollar spent for fertilizer. Over 10,000 cotton growers reported a return of $4.47 for each fertilizer dollar, and 5,000 tobacco growers got back $9.04 for each dollar spent for fertilizer.

"Plantfood content of fertilizer has steadily increased, too," explained Mr. Brand. In 1940 a ton of fertilizer contained over 33 per cent more plantfood than in 1910, and sold at a price only slightly higher than at that time.

Association Work

"So far as The National Fertilizer Association is concerned, it has been in existence since 1893 and has made a life-time job of helping the farmers get a greater financial return from the use of their lands. The success of the industry is based upon profitable returns for farmers.

"The Association is willing to be judged by its record. It has cooperated effectively with farmers and farm leaders, including particularly State and Federal agricultural workers, in both the encouragement of research and bringing farmers the results of research in terms of practical application.

"The Association has cooperated with these agencies in the study and intelligent answering of many questions important to the farmers' welfare — such questions as: What conditions contribute to the best use of fertilizer? What fertilizer is most suitable for certain crops and certain soils? How much fertilizer should farmers use with certain crops? How should they apply it?

"The Association has issued millions of copies of magazines and pamphlets and books carrying these findings on best fertilizer use far and wide. In them all other factors of good farming are emphasized. Its educational charts and motion pictures are used throughout the agricultural schools and farm meetings of the nation. They all bring facts that put dollar's in farmers' pockets. One may fairly wonder why an industry that provides so valuable a service to American farmers at such low prices and with such meager profits is subjected to such attack."

University Expert Says Fruit Outlook Much Brighter

On a recent visit to Tampa, Dr. J. W. Lloyd, marketing and farm research expert from the University of Illinois, said that if America will find a way to get its surplus fruit to hungry mouths, many marketing problems will be solved.

If all the fruit-hungry children of the poor could get all they could eat, there would be fewer apples rotting in the north, fewer oranges going begging in Florida.

But the outlook is getting brighter, he said. More people are buying fruit.

"There is hope of further development of foreign markets, now seriously affected by war," Dr. Lloyd said, "but the bulk of the American fruit crop will continue to be consumed at home. The American markets are first.

"We have many problems, but I am an optimist; one could not well remain in fruit fields and be a pessimist."

Dr. Lloyd is a director of the Illi-

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Control Of ... Citrus Aphids

BY J. R. WATSON
Entomologist, Florida Experiment Station

It is too early to prophesy with any certainty as to whether the coming spring is going to see a heavy infestation of citrus aphids, but there are some conditions in the citrus groves, particularly in the central part of the belt which favor aphid developments. Many trees which were wholly or partly defoliated in the November freeze are putting out new growth which will furnish food for aphids. Later on, the trees which were not hurt will also be putting out new foliage so that the season for aphid development is likely to be long, giving them time to build up a heavy infestation on varieties like tangerines which put out their growth late in the spring.

On the other hand, aphids are scarce at the present time due to the severe drought of the fall which prevented the trees from putting out any young growth which could serve as food for the aphids, but the danger lies in the rapidity of multiplication. This aphid might begin to have young when only six days old and when weather conditions are favorable and food abundant the average production is six young per day. By this extremely rapid multiplication, a single aphid can produce immense numbers at the end of two or three months. If you have any doubts on the point, take a pencil and figure out how many offspring a single aphid may have at the end of three months if it produces six young per day with a generation every week. Remember that they are all females. We have never seen a male on a citrus tree or anywhere else in the main citrus belt of Florida. Of course, as a matter of fact, we never do have this maximum reproduction. Aphids, as well as other things, have their enemies, syrphid flies and lady beetles and a fungus disease being among the most important checks on the citrus aphid. But these predators also have their enemies and diseases, so that they can never be depended upon entirely to prevent an outbreak, although they are a great help, especially the Chinese ladybeetle which we have succeeded in establishing in at least three counties of the state. This extremely large beetle eats more aphids per day than a dozen native ones, and, what is more important, we have not found it to be as highly parasitized by either wasp-like parasites or fungus and bacterial diseases as native ladybeetles.

Most of the damage which this insect inflicts is done in the spring to the first flush of growth. If the aphids are numerous, this flush of growth is seriously interfered with, stunted, and the leaves curled. A bud, which should make a branch from a few inches to a foot long with numerous leaves and perhaps blossoms, may be prevented from developing at all. If it does succeed in making some growth the leaves may be tightly curled and very small. These small curled leaves not only are incapable of nourishing the plant properly, but they make safe retreats in which purple scale and other pests multiply.

It was estimated that during the spring of 1924 this aphid did damage to the citrus trees in Florida to the extent of $4,000,000. It has never since been as bad as it was during the springs of 1924 and 1925, due largely to unfavorable weather during the winter, and probably partly to the fact that there have not been such large numbers of young trees. During a dry and cold winter, when there is very little growth on the citrus trees, aphids will be scarce, but let there come a warm, moist winter, causing growth on the young citrus trees, and aphids will be able to grow and multiply during the winter and their numbers may become very great and the damage may be serious by the time the main flush of growth comes out in the spring. This aphid must have tender growth for feed. It cannot live and reproduce on mature foliage, so the number of aphids and the amount of damage they do in the spring is determined largely by the weather during the winter, particularly that of December and the early part of January.

It is expensive to fight an infestation of aphids once they become numerous. They best insecticide we have found is a 3 percent nicotine sulphate-lime dust. When put on during a quiet time, i. e., a time when there is no wind, this is very effective in killing aphids, but when aphids are flying about, the trees very promptly become reinfested so that the dusting has to be repeated, making the fighting of aphids at blooming time an expensive procedure.

Prevention is always cheaper than control and this is the reason for our taking up this subject at this time when aphids are very scarce in the groves. It should be our aim to keep them scarce. There are two forms of the green citrus aphids: a winged form and a wingless form. Which form will develop depends chiefly on the food supply. As long as the foliage is young and tender, nine-tenths of the aphids will be of the wingless form, but when the foliage approaches full size and begins to harden up, nine-tenths of the aphids will frequently form wings and fly away. Winged forms will be scarce from now until about the middle of March — so scarce that what few do develop will not be likely to leave the grove in which they are raised. In other words, there will be practically no flight of aphids from one grove to another until well along in the spring, until some of the spring growth begins to harden. This means that practically all the aphids a grower will have at blooming time will have been raised in his own grove during the next month or two. It makes very little difference what your neighbor does, unless your grove is small and surrounded by other groves.

The proper preventative is to destroy all aphids found in the groves during the next two months. At this time of the year, when aphids are scarce, one is apt to consider a few colonies as of no importance. As far as the damage that they are doing is concerned, they are of no importance, but the danger lies in their rapid multiplication.

The program, then, for the next month or two in aphid control is to destroy every single green citrus aphid seen in the grove. Weather conditions may prevent an outbreak of the aphids next spring, but destruction of the aphids during the winter is an extremely cheap insurance against a possible outbreak, if weather conditions should be favorable for aphids during the winter. Aphids found during the winter are mostly on young trees, and the young trees, particularly, need attention. At this time of year, perhaps the

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Great Increase In Consumption of Citrus Fruits

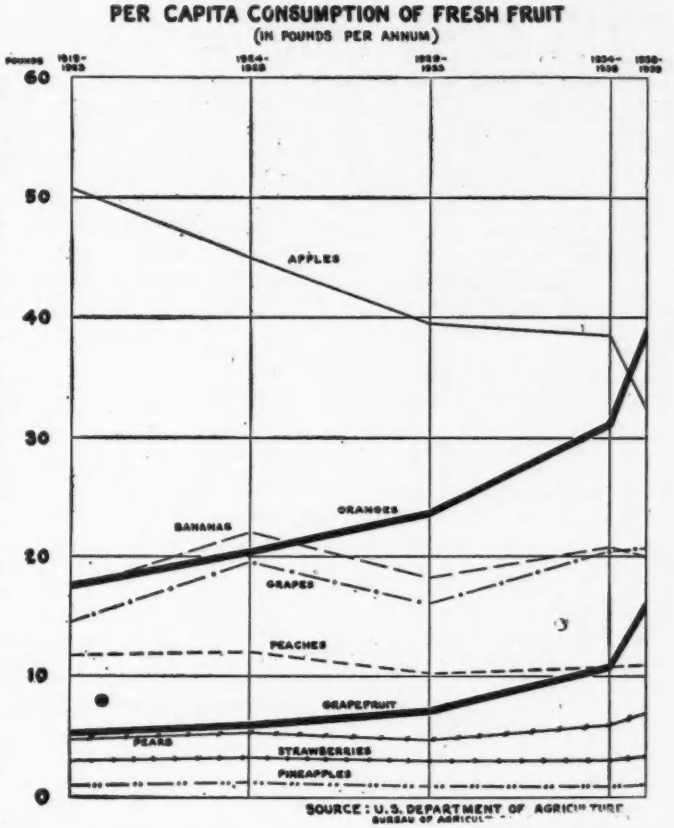
The average American eats more oranges than any other fresh fruit, 38 pounds a year being his average consumption.

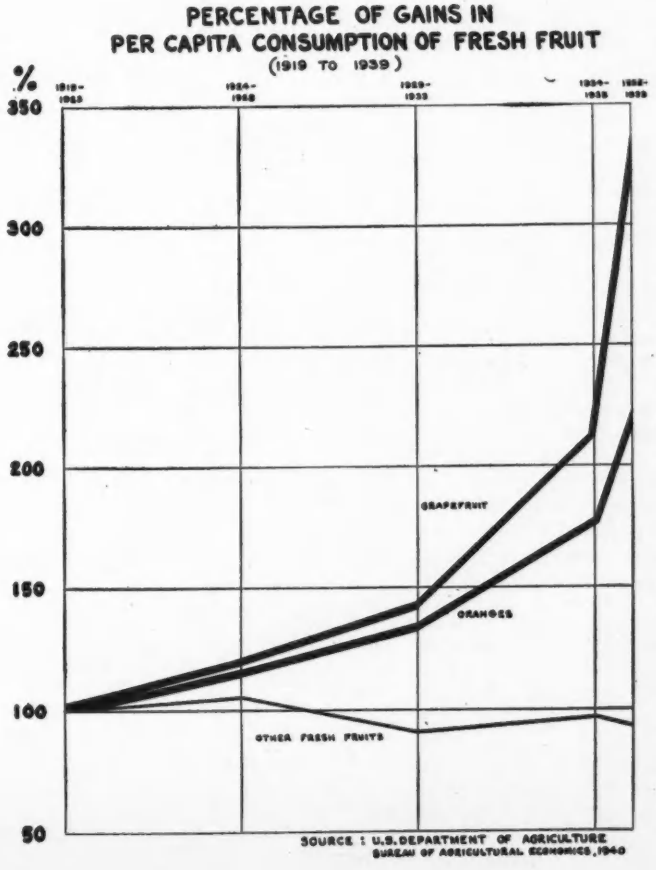
The consumption of oranges and grapefruit has zoomed sharply upward to the highest point in history, while that of other fruits has decreased, remained constant or shown only a slight increase.

These facts were revealed recently by the Florida Citrus Commission in making public figures just compiled by the Bureau of Agricultural Economics of the United States Department of Agriculture. The survey, a continuing study running from year to year, makes available the latest figures up to and including the 1938-39 crop year.

The new figures show that the orange is now the most popular fresh fruit in the country, jumping from 31 pounds per capita in the 1934-38 period to 38.7 pounds in 1938-39. During the same period the apple, long the leading fruit in per capita consumption, slumped from 38.6 pounds per capita to 32.5 pounds per capita.

Grapefruit showed a sharp jump paralleling the orange increase during the same period. Florida's number one product jumped from 10.3





pounds per person in the 1934-38 period to 15.8 pounds per person, up from sixth to fifth in rank.

The per capita ranking of fresh fruit now stands: oranges, 38.7 pounds per person; apples, 32.5 pounds per capita; grapes, 20.7 pounds; bananas, 20 pounds; grapefruit, 15.8 pounds; peaches, 10.9; pears, 6.9; strawberries, 3.4, and pineapples, 1.

While the gain in popularity of oranges and grapefruit was steadily upward in the period from 1919 to 1933, it accelerated sharply in the following years, showing its greatest upward climb in the years since the Florida Citrus Commission began promoting the popularity of citrus fruits through its advertising campaigns in northern markets and through regulation of the shipment of immature and otherwise substandard fruit.

Results of that promotion effort are vividly shown in another chart prepared by the Commission, in which the gains per capita consumption are shown in percentage figures, using the level of 1919-1923 as 100. Up through the 1929-33 period, grapefruit increased from 100 to 140.8, and oranges to 135.1, while all other domestic fresh fruits sagged to 91.4. At the end of 1938, grapefruit had risen sharply to an index of 210.2 and oranges to 178.2. During 1938-39, grapefruit soared to 322.4 percent and oranges to 222.4 percent over the 1919 level while other fruits, after minor variations, remained at 93.9 percent of their former level.

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CITRUS COMMISSION WANTS TERMS TO END IN JUNE

At a recent meeting of the Florida Citrus Commission a proposal was made that the 1941 session of the state legislature be asked to change the law governing the appointment of members of the Commission so that all terms should end in June instead of September.

It appears to us that this is a wise move. Under the present set-up, members are appointed for terms beginning in September, just at the opening of the citrus shipping season. New members taking office at the opening of the season have no time to acquaint themselves with the operations of the Commission and have no intimate knowledge of prior action of the body. In this respect, they are like a newly elected congressman; they must take time which should be devoted to other things to acquaint and adjust themselves to their new duties at a time when every effort should be directed toward promoting the welfare of the growers.

By having new members take office at the beginning of June, just as the shipping season is ending, they would have a full three months to study their new duties and familiarize themselves with the inner workings of the Commission. Then, too, as at present constituted, the advertising program must be taken up, studied and contracts made after the season opens in September, whereas if the terms of office were to begin and end at the first of June, this very important feature of the Commission's work could be concluded and the advertising program put in operation before the shipping season opens.

The legislative committee, it is understood, will have an early conference with Governor Holland, and will then ask the entire Commission to petition the legislature to make the desired change in the law governing the appointment of members of the Commission.

It is also proposed that hereafter each commission be empowered to enact and administer its own program during its term of office.

We believe that the changes proposed are in the interest of more harmonious and more effective effort on the part of the Commission, and, therefore, in the interest of the growers. We believe that the coming session of the legislature will see the wisdom of the proposed change and act accordingly.

TEXANS SEEK RENEWAL OF MARKETING AGREEMENT

Texas Farming and Citriculture, a publication devoted largely to the citrus industry of Texas, is making a strong fight for a renewal of the Citrus Marketing Agreement once in effect in that state but which was discontinued after a short period of operation. In a recent issue, the publication carried the following editorial which may be of interest to Florida citrus growers:

"Early in 1938 the Texas citrus industry, aided by the U. S. Department of Agriculture, erected a structure to protect returns to growers. It proved valuable in price maintenance. But its regulation of shipments in conformity with market conditions interfered to some extent with the selling activities of certain individuals. These became intent upon destroying the Marketing Agreement. By means of questionable propaganda they succeeded, setting up flimsy substitutes that collapsed of their own unsoundness within a month.

"With the notable exception of cooperative marketing, the only means by which prices can be protected against overproduction is found in a reasonable control of shipments. The bombing of the structure for this has left prices for Texas citrus in a state of wreckage. The situation last season was deplorable for the majority of growers, and a similar situation now exists. What else could be expected when the completely uncontrolled shipping practices now prevailing violate the most primary principles of merchandising a commodity encountering heavy competition?

"So we have seen, since soon after the beginning of the present marketing season, a constant booting down of prices by the feet of growers hurrying to sell. Thus most of them defeat their own purpose to obtain a fair return for their fruit. It is obvious enough that there would be no ruinous stampede if the movement of the product was under some sort of proper regulation.

"Is no disinterested, capable, well-informed leadership available?"

CITRUS GROWERS WOULD STRENGTHEN CITRUS LAWS

Directors of the Florida Citrus Growers, Inc., at a recent meeting approved a nine-point legislative program designed to strengthen laws now governing the operation of the industry, the purpose being to throw added restrictions around the shipment of unfit fruit, further strengthen the embargoes on shipments following a freeze, increase the weight limit on trucks from 32,000 to 40,000 pounds, support a bill by the Indian River growers to protect the name and reputation of fruit from that section, and to aid the tangerine growers in solving their marketing problems.

Manufacture Of Fertilizers In The United States 1859-1939

Fertilizers produced in U. S. factories in 1939 were valued at $161,887,134, according to a preliminary tabulation of the 1939 Census of Manufactures announced by Director William Lane Austin of the Bureau of the Census. Of this total, fertilizers valued at $151,997,990 were produced in the fertilizer industry — establishments engaged primarily in the manufacture of commercial fertilizers and superphosphates, or mixing of fertilizer materials. The remainder was the value, $9,889,144, of fertilizers made as secondary products in other industries.

Total value of all products of the fertilizer industry in 1939 was reported at $185,684,328, compared with $195,759,025 in 1937. In addition to fertilizers, value of which is given above, other products not classified in the industry were valued at $33,686,338, including sulphuric acid, sodium silico fluoride, phosphoric acid, bone black, etcetra, and $23,001,613 worth of goods sold in the condition in which they were purchased.

Kinds, quantity and value of fertilizers produced in 1939 included:

Complete fertilizers (mixtures containing nitrogen, phosphoric acid, and potash), 5,088,468 tons valued at $117,666,262.

Potash superphosphate mixtures, 233,355 tons valued at $4,824,707, basis 16 percent available phosphoric acid.

Superphosphates, not ammoniated, including concentrated phosphates, 4,152,269 tons, of which 2,756,967 tons valued at $23,937,497 were made for sale; and 1,395,302 tons were made and consumed in the same establishments. In addition, 68,920 tons of superphosphates, basis 47 percent P2O5, were produced by the Tennessee Valley Authority during the fiscal year ending June 30, 1939.

Bone meal, 62,004 tons, $1,760,942.

Ammoniated superphosphates, including urea and ammonium-nitrate solutions, 32,878 tons, $572,756.

Other ammoniated, nonpotash, fertilizers, 6,834 tons, $138,678.

Other fertilizers, including legume inoculants, 360,146 tons, $6,660,877.

Tankage, 225,575 tons, $6,325,415. This does not include tankage produced in the meat packing industry. In the report of the meat packing industry there were included livestock by-product fertilizer materials, 34,660 tons, valued at $1,140,409.

The value of products of the fertilizer industry for each Census year since 1859, as reported in the Census of Manufactures is given below:

1939	$185,684,328
1937	195,759,025
1935	140,386,112
1933	94,939,311
1931	154,349,887
1929	232,510,936
1927	190,384,890
1925	206,772,904
1923	183,088,751
1921	180,374,789
1919	281,143,587
1914	153,196,152
1909	103,960,213
1904	56,541,253
1899	44,657,385
1889	39,181,000
1879	23,651,000
1869	5,815,000
1859	891,000

These totals do not include the value of fertilizers produced in other industries as secondary products of such industries.

ALL-COLOR, SOUND MOTION PICTURE SHOWN BY CHILEAN NITRATE BUREAU

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out the South.

In discussing the new picture, Mr. J. F. Bazemore, of the Chilean Nitrate organization, who arranged the showing, said: "Plants as well as animals and people suffer from food deficiencies. In this picture are shown in natural color the effects of various plant food deficiencies on citrus, vegetables, and other crops grown in the South. Since plant food deficiencies show up in characteristic fashion in the crop, a grower who sees these pictures made in the field will be able to recognize similar conditions if they occur in his own crop."

Pointing out that Southern farmers have long applied nitrogen, phosphate and potash to their crops, the picture shows that even when these plant food elements are supplied, crops may suffer from deficiencies of other elements, some of which are required only in trace amounts. The role of natural fertilizer materials such as manure, tankage, fish scrap, cotton seed meal and natural nitrate of soda in maintaining the supply of other essential plant food elements in the soil is shown.

Another feature of the picture of interest to growers shows the mining, refining and transportation of natural nitrate of soda in Chile and its use on our Southern farms.

"The first shipment of Chilean Nitrate to this country was made 110 years ago," said Mr. Bazemore, "Since that time it not only has helped our Southern farmers produce better crops, but has also played an important part in creating a market in Chile for our exports. Chile buys more from the United States than from any other country, including machinery, oils, automobiles, cotton, radios, electrical goods and other products. Our purchases of Chilean Nitrate make this trade possible."

UNIVERSITY EXPERT SAYS FRUIT OUTLOOK BRIGHTER

(Continued from page 7)

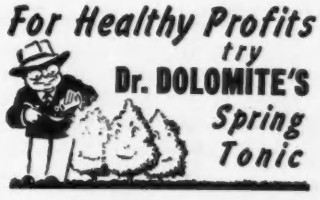
nois Fruit exchange, which handles temperate zone fruits, and he is of necessity most interested in the fruits of the north.

"Of course, we are all competitors," he said. "We are all in the same markets.

"You keep in touch with the apple crop; we watch the oranges and bananas."

Dr. Lloyd is making his first trip to Florida. He is on a year's leave of absence from the university and already has visited groves and packing houses of California and Texas.

Approximately 26 million acres of farm land were protected from erosion by such practices as contour farming, strip cropping and summerfallowing under the 1939 AAA Farm Program.



Winter's rains rob your soils of needed calcium and magnesium carbonates. Winter's crops also take their share

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NITROGEN PHOSPHORUS POTASH CALCIUM COPPER IRON MAGNESIUM MANGANESE SULPHUR ZINC

Knowledge Of Growers' Problems And Fine Fertilizers Most Helpful

BY G. D. SLOAN

Without any particular desire to be too personal about our own activities in the matter of tendering counsel to growers of citrus fruits or vegetables, we believe that our long experience in the horticultural field does entitle us to speak with more than an average degree of authority concerning the varied problems which confront the average grower in the production of fine crops.

When we first became associated with the fertilizer business many years ago it did not take us long to realize that the sort of salesmanship which was most effective was the kind which delivered to the grower the sort of fertilizer which his particular requirements most urgently needed and which would give the results the field man promised it would give.

Since the organization of our present company a little more than four years ago we believe that its rapid growth may be credited to following out of the policy outlined above.

Our staff of field men are men who, not only as the result of their college training, but who as the result of their practical experience as growers, caretakers or advisers, are equipped to tender counsel when it is solicited which will be completely authentic and reliable.

Then, too, we have sought to offer in our fertilizers those added features in the way of rare and essential elements which give the added impetus to crops that make them stand out far above the average.

The result has been that we have built up a business over a relatively short time which records for us an added volume of sales with each passing month and year.

Any number of growers of outstanding citrus or vegetable crops will vouch for the fact that their crops have shown marked improvement in every respect since they started using our fertilizers and taking advantage of the counsel of our field men.

We do not ask you to buy our goods without a thorough investigation, but we do believe we can prove to you that there is a decided advantage to you as a grower in using them — if you will give us an opportunity to demonstrate for you.

It costs nothing to talk the matter over. Give us a chance to discuss it with you.

More Grow
More Tons Of
Fertilizers Ea

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crease in tonnage can an o
Fertilizers do all we c n for
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as hly competitive as the fertilizer business this in- can ean only one thing. It means that Superior we c n for them — that the inclusion of All Ten Vi- r for las produces Finer Crops of Fruits and Vege-

ll ese Brands With The Added edi ts Cost No More Than Ordinary Fertilizers

redi prices uncertain we do not know how long we tinue is practice, but in any event our policy of giv- the most for their money will remain unchanged as bus s. Order now for your Spring Application!

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And hundreds of customers over Florida will vouch for the fact that in our "Extra Value" Brands they do get more for the money they spend.

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tor nd Office East Broadway At 47th Street, Tampa, Florida

NITROGEN PHOSPHORUS POTASH CALCIUM COPPER IRON MAGNESIUM MANGANESE SULPHUR ZINC

Some Handy Insecticides

For Home And Garden

A. N. TISSOT
Associate Entomologist, Florida Experiment Station

In a recent text book of entomology the authors say that "insecticides are materials for destroying insects or to repel and drive them away." I wish to discuss rather briefly some of the more common and easily procured insecticides that are useful for destroying insects in and about our homes and gardens.

In general, insecticides may be divided into three classes. The first group comprises the internal insecticides or stomach poisons which must actually be eaten by the insect. These are used to kill those insects that chew their food — for example, caterpillars, beetles, grasshoppers, and roaches. The second group contains the external or contact insecticides — materials having caustic or other properties which kill when actually applied to the insect. Contact insecticides are used principally against soft bodied insects, as aphids, leafhoppers, and scales. The third group, the fumigants, is composed of substances which volatilize readily, producing gases or fumes poisonous to insects. Fumigants are used principally against household insects or others which may be confined in small, closed spaces.

Certain of the insecticides are suitable for both indoor and outdoor use but it may be less confusing if we first discuss those for use in the home and then consider those for use out of doors.

Sodium fluoride, and borax are commonly used as household insect poisons. Sodium fluoride is a rather coarse white powder which is highly toxic to insects. It is somewhat poisonous to human beings and care should be taken that it does not contaminate food materials. The container should be plainly labeled **"Poison"** so that the contents will not mistakenly be used for baking power or soda. Sodium fluoride is most often used for controlling roaches but it has some value as a control for silver fish, ants and other household pests. The powder should be blown or sprinkled on floors and shelves of closets, beneath sinks and in other places where roaches and other pests are found. Many of the commercial roach powders are composed principally or wholly of sodium fluoride.

Powdered borax sprinkled around where ants are entering a house will often serve to drive them away. Mixed with sweet powdered chocolate or other attractants, borax makes a pretty good roach poison. It is harmless to human beings except in relatively large amounts.

There are on the market a great many proprietary poisons, for use against roaches and ants. These consist of phosphorus, arsenic, thallium, or other poisons mixed with some food material. The great majority of these are poisonous to human beings and they should be used with great care, particularly if there are young children in the household.

Pyrethrum and rotenone are among the more common of the contact household insecticides. These are plant products which are highly toxic to insects, but practically harmless to human beings and warm blooded animals. The powdered materials if finely ground and fresh are effective against roaches, silver fish and other insects. The toxic principles in these powders are very volatile and they soon lose their strength on exposure to air so applications must be made at frequent intervals. Pyrethrum and rotenone furnish the active principle of most household insect sprays. A great many of these are on the market and those made by the larger, more reliable concerns can be depended upon for good results if used as directed.

An effective household spray can be made at home by placing one pound of finely ground pyrethrum flowers in a gallon of the best kerosene available and allowing it to stand for several hours with occasional stirring. The clear yellowish liquid then should be carefully poured off and kept in tightly stoppered bottles until used. A little oil of wintergreen added to the spray will give it a pleasant odor. The sprays are effective against flies, mosquitoes and roaches — in fact they will kill practically all insects with which they come in contact. They are best applied with a small hand sprayer which produces a fine mist that may be driven into cracks and crevices where the insects may be hiding.

Many materials give off fumes which are poisonous to insects but only a few are satisfactory for household use. One of the most common fumigants is carbon bisulfide. This is a colorless liquid which evaporates rapidly, forming a gas that is about two and a half times as heavy as air. This gas is very toxic to insects but not very poisonous to human beings. Unfortunately, however, the gas is very explosive and it should never

a TELEPHONE is well worth its small cost

A WHILE back, we almost lost a cow because it took so long to get the veterinary. We got a phone, and it's been useful in so many other ways that we'll never be without it again. We call our friends and they call us. It makes it so much more cheerful here on the farm, especially when the weather's bad. And it's a fine feeling to know that we can phone neighbors or the doctor quickly in an emergency. A phone is well worth its price. It doesn't pay to be without one.

Peninsular Telephone Co.

TOO LATE TO CLASSIFY

MACHINERY: Complete for 4 or 5 car capacity packinghouse, includes Coloring Room Eqiupment, Low Pressure Steam Boiler, Water Tank and Steel Tower. Sacrifice price for whole or part. Box 1987, Tampa.

be used in the presence of fire of any kind. The usual dosage of carbon bisulfide is one pint of the liquid to each 100 cubic feet of space.

Sulphur is rather commonly used as a house fumigant and is fairly effective against many insects if used in sufficient quantities. If a room or building can be made very tight, burning three pounds of sulphur to each 1000 cubic feet of space will kill practically all insects. The room should be kept closed for at least eight hours and then aired thoroughly before it is again occupied. Sulphur fumes are not explosive and they are not particularly poisonous but they tarnish some metals, especially silver, and they tend to bleach certain colored fabrics and wall papers.

One of the most effective fumigants is hydrogen cyanide. However, this is one of the most deadly poisons known and it should be used only by an experienced and reliable operator.

Napthalene and paradichlorobenzene are fumigants commonly used against clothes moths. The well known moth balls are composed of napthalene but this material is cheaper and much more effective when used in flake form. Paradichlorobenzene has long been used for controlling peach tree borers, and is often sold under the shorter name of P. D. B. To be effective against clothes moths both materials must be used in a tight container as a trunk or large carton whose lid can be sealed down with adhesive tape or gummed paper. The usual dosage is one pound to every ten cubic fet of space. Liberal quantities of these materials sprinkled between the folds of blankets and woolen clothing will protect them from moths and other insects during summer storage.

For controlling insect pests in our gardens and on our ornamental shrubs and flowers we need a very different group of insecticides. Most of the chewing insects, as caterpillars, beetles, and grasshoppers, can be controlled with arsenate of lead. This may be used in water at the rate of one ounce to three gallons. To avoid burning tender vegetation one should add three ounces of hydrated lime to each three gallons of the spray. Arsenate of lead may be mixed with hydrated lime or flour in the proportions of one to eight and used as a dust. Both the spray and the dust leave white residues on foliage which may at times be objectionable. To meet this objection there has been developed a green arsenate of lead which gives equally good control of insects and causes very little foliage discoloration.

For controlling aphids, leafhoppers, and other soft bodied sucking insects we use a contact insecticide. There is a wide array of these from which to choose. One of the oldest and most widely used is nicotine sulfate which is commonly sold under the name of Black Leaf 40. Other very satisfactory contact insecticides contain pyrethrum or rotenone or extracts of these materials. They are fully as effective but more expensive than nicotine sulfate, but they will kill many caterpillars and small chewing insects which cannot be controlled with nicotine and this is a decided advantage in their favor.

Scale insects and whiteflies require a different kind of contact insecticide. The most effective material for controlling these pests is an oil emulsion, of which there are many different brands on the market. Because of the danger of burning tender foliage it is better to use one of the white oil emulsions. Though not as good as the oil emulsions, ordinary laundry soap sometimes is used against scales and whiteflies. The soap should be used at the rate of one pound to five or six gallons of water and two or three applications are usually needed for a complete cleanup of the insects.

Many of the better insecticide manufacturers now pack their products in small packages especially for home gardens and dooryard plantings. Directions for mixing and applying the materials are usually given on the label of the container in which they are sold and these should always be carefully followed.

Perhaps it may be well in closing to mention a few precautions and give some general hints for satisfactory insect control. One should never spray tender plants during the middle of the day when the sun is shining brightly. Just wetting the leaves with pure water will sometimes cause burning under these conditions. When using poison sprays or dusts against chewing insects the insecticide should be put on so evenly that the insects will have to eat some of the poison or starve. One should always remember that contact insecticides kill only the insects that they actually touch and that they must therefore be applied very thoroughly and carefully. Satisfactory application can be obtained only when suitable sprayers and dusters are used. For a few plants in pots or window boxes a small hand atomizer may be sufficient. For the average yard and garden a knapsack or compressed air sprayer is fine for applying sprays. Dust insecticides may be put on with small bellows or fan type hand dusters.

NEW LEAFLET OUTLINES TERRACE MAINTENANCE

Florida farmers, realizing that even the best of terraces must be properly maintained if they are to continue to function, will be interested in a short new U. S. Department of Agriculture leaflet entitled, "Plowing for Terrace Maintenance in the South."

Announcement that the leaflet is available was made by Colin D. Gunn, state coordinator for the Soil Conservation Service. Copies may be obtained without cost by writing the Regional Office, Soil Conservation Service, Spartanburg, S. C.

In 1900 it required $3,000 to start an average farm; in 1930 it took $8,000.

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Trend In . . . CITRUS MARKETS

BY TED PURVIS, JR.
College of Agriculture, University of Florida

Predicting prices is a rather difficult and hazardous job. It is difficult because so many factors have to be taken into consideration. And hazardous because so many times factors may change suddenly and unexpectedly and cause the results of the calculations to be far from what actually occurs. If a person can predict prices correctly over 50 percent of the time and sell his fruit accordingly he should be able to make greater profits through these predictions, otherwise they will probably be costly.

Generally, the best rule to follow in marketing citrus is to sell when the fruit is in the best condition in relation to the rest of the crop. For, usually, this is the time when the grower will receive the highest price for his particular fruit. Every grower, however, should keep up to date with the behavior and the trend in the market.

This season the trend of the different citrus fruits in the markets is similar to that predicted at the end of last year and is developing much like it has in past years.

The total 1940-41 production of all citrus is estimated to be 11.5 percent higher than last season and slightly less than the 1938-39 season. Due to the defense program, industrial production is steadily mounting. This means more and higher wages, and, therefore, an increase in consumer income. This will be a great help in raising the price of citrus. It will tend to offset the increased production and the loss of the export market.

Grapefruit probably will show more of an increase in production than any other of the citrus fruits.

The auction price is still remaining below that of last year and below the 1935-36 to 1939-40 five-year average. For more than a month the price has been varying between $1.80 and $1.90. There was a drop in the week ending January 17, however, to $1.71, which is the lowest price of the season. The price this year is steadier than last. There are smaller fluctuations from week to week in the prices.

If grapefruit prices act as usual there should be a steady increase in the price for the remainder of the season. It was forecast last month that as the season goes on the price should rise. As yet, this rise has not taken place.

The price which canners have been paying for grapefruit has been rather steady this season. Between 300,000 and 600,000 boxes have been going to the canners each week.

During the first week and a half in February the Surplus Marketing Administration bought 630 cars of grapefruit for juice canning. This is double their previous purchase. Assuming the fruit thus bought will be placed so as not to compete with other fruit and juice on the market, this action will be a slight help in raising the price.

The price of oranges on the auction market this year is staying well above last year's price. This year's price has, since the beginning of the season, been somewhat below the five-year average price, but is more closely approaching it each week.

The price of oranges has been rising since the first part of December. Past records show that the month of lowest prices is December, and the months of highest prices are April to June. On the basis of this behavior we may expect the prices of oranges to continue to rise. Barring any unforseen events, oranges this year should act as usual except that the increase in wage earners' incomes will tend to keep the price at a higher level than in the past few years.

Canners have been taking about 250 cars of oranges per week. The price trend for oranges for canning has been slowly rising during the past six weeks.

The tangerine season started several weeks late this season. The first auction sales consisted of 14 cars in the latter part of November which sold for $4.26. However, as the season moved on, the shipments greatly increased and the prices dropped fast. Yet, the shipments of tangerines for the season to date is lower than for last year or for the year before. At the middle of January the average price at auction was $1.58. Since then the price has begun to recover.

Another factor in addition to the large shipments which may have kept the price down is the fact that the quality of the fruit has been low, due to unfavorable weather conditions. In the past four weeks the weather has been more ideal for fruit.

Shipments have already begun to decrease and as soon as present supplies are gotten rid of the price should rise. But it may be quite a while before prices are back to normal.

WHY . . . Or "Why Not?"

(Continued from page 5)

market.

We complain about the over production of fruit. There is no over production. It's the way be handle and distribute it. If there is an over production of anything today it is automobiles, but the cars are sold just the same and for profit just as fast as they can be made. There is too small an area where citrus can ever be raised as compared to the non productive area to be supplied to ever talk about over production.

Why must we ship early immature fruit? Why must we have the ridiculous most inconsistent great number of grades and brands under which our fruit is packed and marketed? Why must we mix our different varieties of fruit and seasons by trying to force shipment of mid-season varieties in the early market, the late va-

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OUR 76TH YEAR OF SERVICE

rieties in the mid-season market, etc. And vice versa, holding our early varieties over into later seasons, destroying our prevailing markets with off season varieties, and contamination ruling supreme? Creating false reaction with principles of supply and demand involved?

And the more legislation, rules and regulations set forth, citrus committees, commissions and what not, the worse, rather than better, our situation seems to become.

In a "nut shell" does it appear to add up to the fact that our Florida citrus men haven't as much sense as those of California, or are we negligent? What can we do about it? Are we going to continue with our present methods and performances?

I often think of the words and the expression, which I will never forget, of Mr. Josh Chase, when he said to me in my grove at Sans Souci some twenty-odd years ago, when we were discussing the marketing situation of that time, viz: "It is a question of the man who can produce the most fruit and the best fruit, at the cheapest cost; a case of the survival of the fittest."

It is evident that to properly adjust our situation, stabilize it, keep it so, must depend upon the integrity of the individual growers and shippers whose personal interest, ownership and control of the crop must insure the proper performance. Will we ever come around to it? Why not?

GREAT INCREASE IN CONSUMPTION OF CITRUS FRUITS

(Continued from page 9)

While part of the increase in consumption can probably be ascribed to bumper crops and lowered costs to the consumer, it is pointed out that the Commission's promotion policies are unquestionably producng results in northern markets, and, by spreading information about the health qualities of citrus fruits and creating a demand for the Florida product, have been instrumental in moving the fruit and preventing an otherwise disastrous situation of over-production and rock-bottom prices.

A new publication, Circular No. 577, by the United States Department of Agriculture discusses the manufacture of citrus products. Copies may be obtained free from the department in Washington.

Research has helped reduce the cost of establishing new forests by increasing survival of young trees as much as 50 to 75 per cent in some localities, says the U. S. Forest Service.

HOW can every acre be made to produce its best?

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● There's one simple answer to this question — BUY FERTILIZER TO FIT YOUR SOILS . . . so that trees and plants get the right plant foods in the right amounts at the right time. There's a GULF Field Man in your section who will be glad to help you solve the problem of better crops at economical cost. He'll recommend "keyed to your soil" balanced fertilizers to do the job YOU require. Now is the time to plan your Spring fertilization program. Ask your local GULF Field Man to work with you in making every acre produce its best.

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Horticultural Hints

Growers in Florida have gone through some very trying times during the past five or six years and are entitled to better breaks than we have had with both weather and market conditions.

We have talked to a large number of growers and shippers and it is the general consensus of opinion that we are just approaching a period of increased prosperity. If you are to share in these better prices as a citrus fruit grower it is essential that you start with your efforts right at this time.

Your trees are setting a fruit crop this month, and during the months that follow it is going to be up to you to either employ methods that will result in No. 1 quality fruit, the kind of fruit that will give you a profit this fall, or resort to haphazard methods that will result in small crops of poor quality that will keep you in red ink.

The LYONS FERTILIZER COMPANY through their many facilities are in position to assist you in growing the kind of fruit that will bring a premium on any market and we invite you to call on us for service that only a well trained field force can give when backed by an executive head that is interested in seeing every grower in Florida, both citrus and vegetable, produce the greatest quantity of the best quality commodity that practical and scientific knowledge knows about. It is essential that your trees have sufficient available plant foods at this time to set the new crop of fruit.

If you haven't made a spring application of fertilizer we urge you to come in at this time with one of the quickly available topdressers. Melanose is now showing up on new growth and should be controlled just as soon as possible. Scale insects are very active and must be placed under control. Rust mites are active and must be controlled immediately.

Young trees should be carefully worked and fertilized at this time. This is an excellent season of the year for putting in new trees.

We are not going to make any general recommendations in this small space because we have found that every grove is an individual problem, but we do tell you that we can be of service to you. and that we are always glad to know that a LYONS FIELD MAN is out in your grove advising with you on the many problems that come up in the profitable production of fruit.

Reports of Lyons Field Men . . .

NORTH CENTRAL FLORIDA
H. C. (Doug) Douglas

Throughout this citrus area trees appear to be in splendid condition and are showing considerable new growth. Buds are beginning to show in a number of groves and a fairly heavy bloom is expected. Disking and plowing is being done extensively now and fertilization is nearing completion. Practically all of the early and mid-season fruit has been moved from this section. In recent weeks a big clean up of grapefruit has taken place, both of fresh and cannery fruit.

SOUTHWEST FLORIDA
F. W. (Felton) Scott

We are seeing very little citrus bloom in this section but the buds are beginning to swell and it is expected, with favorable weather conditions, that we will soon have a good normal bloom on most varieties. Trees are looking very nice and we have sufficient moisture in the ground to carry the trees for some time. Scale is causing considerable damage in some groves and this summer season it will be necessary to carry out a complete program of oil spraying. Heavy rains around the first of the month caused considerable damage to celery in both quality and production. However, prices are very good and growers are experiencing a successful season.

WEST CENTRAL FLORIDA
E. A. (Mac) McCartney

Conditions in this territory are better than we had hoped for at this time last month. The citrus growers are looking ahead to a good citrus market, and now that the danger of cold weather is pretty well past every one is feeling better. The Plant City section has had a very unsatisfactory season due to weather conditions. Berry growers have had their hopes renewed repeatedly only to have rain or frost knock them into a "cocked hat." Growers are hoping for a few weeks of good weather to end up the berry season.

HILLSBOROUGH AND PINELLAS COUNTIES
C. S. (Charlie) Little

Conditions are beginning to look up around this territory at the present time. Growers have been selling mid-season fruit for 75c and $1.00 and are being offered better prices for valencias. There are very few crops of valencias being sold at this time and growers are hoping for real good prices. A number of growers are making application of topdresser to their trees at this time and this will be of much importance in setting their crop this spring. A number of growers are using oil at this time to control scale. Rust mites have been active during the past few weeks.

POLK & HIGHLANDS COUNTIES
J. M. (Jim) Sample

The spring fertilizer application is just about finished in this territory now and this fact coupled with the abundance of rain during the past two months should provide ideal blooming conditions for the trees. Valencias are blooming earlier here than grapefruit. Many growers in this section have started their light spring cultivation and will continue with this until the bloom is set. Quite a little melanose is showing up on the new growth and this is being controlled with copper spray. Scale insects are also active in the section.

EAST COAST

Rains during the early part of February played havoc with all farming activities on the lower east coast and also in the Lake Okechobee sections. Tomatoes in the Dania section were damaged by excessive rains and beans and other crops in the section suffered badly. However, in the case of tomatoes a number of growers were frotunate enough to have plants to replant. In the lake section, growers have started their operations and are replanting their crops.

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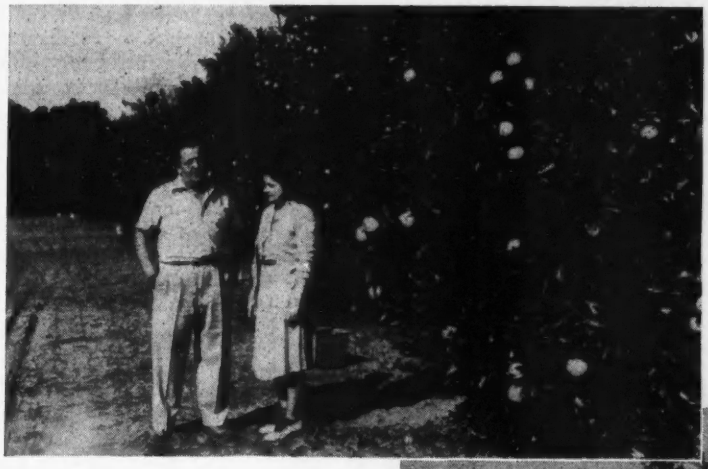

—At the left

Mr. and Mrs.
L. G. FERRIS
Pictured in their 175 acre grove located on Lake Tsalapopka near Floral City

—At the right

L. G. Ferris
with his grove superintendent
J. W. Williams
in the Ferris Grove

L. G. Ferris, Floral City Grower

Says Lyons Citrus Program Best In The State

L. G. Ferris, Floral City citrus grower, while not the largest grower in the state has made an enviable reputation for the fine quality fruit he produces and the remarkable yield he gets from his grove.

His fruit compares very favorably with the finest Indian River fruit and recently a sale of Temple oranges from the Ferris grove topped Indian River fruit on the auction.

Referring to his Fertilizer Program Mr. Ferris says:

"While I am not one of the old customers of the Lyons Fertilizer Company, I have been using Lyons' goods for nearly three years. My grove is in better condition than it has ever been and I have more fruit and better quality fruit than ever before. I believe the Lyons folks have the best citrus program in the State and I am thoroughly satisfied with their products and their services."

You, Too, Will Profit By Using Lyons Fertilizers

Quarantine Regulations Lessoned On Puerto Rican Fruits - Vegetables

Considerable lessening of restrictions affecting movement of fruit and vegetable shipments from Puerto Rico will result from approval given by the Secretary of Agriculture to a revision of Quarrantine No. 58 and its regulations, governing the movement of fruit and vegetable products from the Island.

According to the terms of this revision, which became effective January 22, a lengthy list of products shipped from the Island, including many of commercial importance such as tomatoes, cucumbers, pineapples, bananas, papayas and avocados, will be relieved of existing marking and certification requirements. Unless inspection reveals infestation conditions there will be no return to certification for these products. Some fruits and vegetables, such as citrus fruit shipped to ports on the Atlantic Coast south of Baltimore, peppers and corn, still require certification.

According to the Bureau of Entomology and Plant Quarrantine, which recommended liberalization of restrictions, studies of insect pests in Puerto Rico, as well as records of many years of inspection there, indicate that the modification can be allowed without appreciably increasing any danger that might exist from the comparatively few injurious insects that may be carried from the Island on these products.

Quarrantine No. 58 as originally established July 1, 1925 — because of the presence on the Island of the West Indian fruit fly, bean pod borer, and other insects — permitted shipment to the mainland of only a few well-known products under a system of inspection and certification. Several years of study and inspection permitted many additions to the original list of products authorized for movement, and these were included in a revision of Regulation 3 dated December 13, 1932.

CONTROL OF CITRUS APHIDS

(Continued from page 8)

most handy method of fighting aphids is to go through the grove once every week or ten days with a bucket containing some good strong insecticide, such as nicotine sulphate or a pyrethrum compound. The colonies at this time of year will be mostly on the ends of branches which can be easily bent over into the bucket. Swish them around once or twice so as to thoroughly wet all aphids. A little soap or other spreader should be put into the bucket with the insecticide (nicotine sulfate) to facilitate the kill.

One grower that I know keeps in his pocket a little sack containing a little nicotine sulphate-lime dust. Whenever he sees a colony of aphids he bends the twig into the bag, closes up the opening with his hand, gives it a shake or two, places the bag back in his pocket, and goes about his work. Other growers make it a practice to pinch off and destroy all colonies of aphids that they see. Later on, when the aphids become more numerous on young growth further down the branches where they cannot be bent down into buckets, spot dusting may be resorted to, using 3 percent nicotine sulphate-lime dust. If done on a quiet, warm day this will be found very satisfactory.

Whichever method you use, destroy all colonies of aphids from now until blossoming time in the spring. This is a cheap and effective insurance against a serious outbreak of this potentially very destructive pest.

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Seasonal Changes In Principal Varieties Of Florida Oranges

(Concluded from last issue)

In all of the varieties of oranges investigated it was found that the ratio of solids to acid increased with the maturity of the fruit, since solids generally increased while the acir decreased (see tables 3 to 6).

Very low acidity was responsible for the high ratio of Sixteen to One oranges even though this fruit was lowest in total solids.

Midseason and late varieties generally had lower ratios than the early varieties. This was due to the higher acidity of the fruit rather than to a deficiency in solids.

At the beginning of each shipping season more or less complaint is heard from consumers and buyers about sour immature fruit. Since the fruit must have passed the legal solids-acid requirement, it may be assumed that such complaints arise because it is an inadequate criterion of satisfactory eating quality.

In this study oranges were analyzed individually as they might be used by the consumer. From the data, individual variations within each sample were disclosed as well as the percentage of oranges which were below the 8 to 1 solids-acid ratio. The data show that although the average juice of a sample met or surpassed the 8 to 1 solids-acid ratio, a high percentage of the individual oranges which made up the sample often failed to meet this requirement. It appears, therefore, that there is a real basis for the complaints of consumers on this score.

In the data presented herein, Parson Brown oranges grown on rough lemon rotstock had 16 percent below the 8 to 1 solids-acid ratio; Parson Brown on sour orange rootstock, 12 percent; Hamlin, 36 percent; Sixteen to One, 16 percent; Seedlings, 8 percent; Pineapple, 4 percent and Valencias, grown on rough lemon and sour orange rootstcks, 40 and 56%, respectively.

The results for Valencia oranges, while significant, are probably less important than those for early and midseason varieties. This is because no large scale shipments of Valencias are made until late February or March after the bulk of ripe midseason oranges have been shipped. As long as this practice is followed it is not likely that sour, immature Valencia oranges will reach the consumer. On the other hand, if Valencias were shipped as soon as they meet the solids-acid test, it is probable that as high percentages of immature Valencias might be shipped as of earlier oranges.

Summary

This investigation has dealt with the seasonal changes in the leading varieties of Florida oranges during development and ripening. A systematic study was made during three seasons, 1935 through 1938, involving the periodic analysis of more than 13,000 individual fruits and about 1,100 composite samples of from 25 to 50 oranges each.

Seasonal changes in weight and diameter of fruit, color and thickness of rind, volume of juice, flavor, total acidity, total solids and the ascorbic acid content in the juice of early, midseason and late oranges have been briefly discussed.

Analyses of individual fruit showed that a high percentage of oranges in a sample might be below the ratio 8 to 1, although the average juice of the entire sample met or surpassed this requirement.

Conclusions

As a result of this study it is the opinion of the author that a more desirable standard for oranges could be obtained by the adoption of an adequate standard based on a minimum total solids content and a maximum as well as a minimum total acid content. A standard based on maximum total acid and minimum total solids would permit shipment of "pleasantly tart" fruit which consumers would rate as having good eating quality and keep out the exces-

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sively tart fruit. The minimum acid requirement would prevent the shipment of insipid fruit of poor eating quality. In the home the juice of several oranges is rarely composited but more frequently the juice is extracted from 1 or 2 fruits for an individual serving. Therefore, if practical under commercial conditions, the standards mentioned should be applied to each individual orange in the sample. It is recognized that under such regulatory measures should be included a tolerance to allow for variation among individual fruits.

NEW MARKETS FOR FLORIDA CITRUS POSSIBLE

(Continued from page 3)

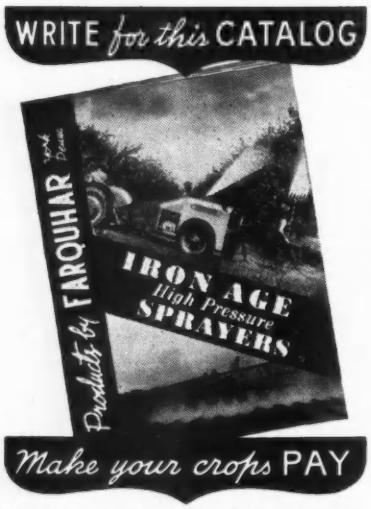
Just when the report from the interstate commerce commission to congress will be made is uncertain, but its preparation is going ahead with all possible speed. Congress in the transportation act passed last year specifically instructed that this report be made available as early in the present session as possible. There are indications it will be presented in the next few weeks.

The citrus commission has been looking hopefully for some time at the vast market which would be opened, and preliminary plans for an intensive sales promotional campaign already have been made, predicated on a change in the truck situation. Up to the present time, the commission has been forced to restrict its sales effort in that territory as creation of a heavy demand would not bring a corresponding increase in supplies because of the truck restrictions.

In addition to the brief, representatives of the citrus commission have personally conferred with experts at the interstate commerce commission to emphasize the unfair competitive situation now existing. No public hearings were held by the interstate commerce commission, in order to conserve time and send its report to congress at the earliest possible date.

The American Trucking Associations, with headquarters here, also are taking an active part in this proceeding. While the citrus commission could speak only for the citrus industry in its brief, any relief which is obtained would be equally beneficial to all agricultural products from Florida moving into the midwestern territory now practically blocked.

In its brief, the trucking association pointed out that national defense efforts might be seriously hampered unless the truck regulations were changed. It pointed out that there are many single pieces of military equipment which must be transported by truck but are so heavy they could not possibly move across either Kentucky or Tennesse under the present restrictions.



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LAND PLANNING IS GOOD METHOD FOR MOBILIZING AGRICULTUURE—NEWELL

"Land-use planning is the most effective available system for mobilizing the forces of agriculture in the national defense program," says Dr. Wilmon Newell. provost for agriculture in the University of Florida.

The major purpose of land-use planning, Dr. Newell explained, is to unify the thoughts and efforts of rural people and agricultural workers in Florida for solving farm problems. "It not only exemplifies the democratic way of solving problems, but it strengthens our state and our nation by making our people stronger, healthier, and happier," he asserted.

Meetings are being held in 11 Florida counties in which land-use planning work has been undertaken for the purpose of assembling information which will be used by the United States Department of Agriculture in administering the Bankhead-Jones Tenant Act. Information obtained at these meetings, the provost explained, will be of great value.

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PLANT SOAR'S SWEET ORANGE trees for profit, fruit sells in September for $1.12½ to $1.50 per box. No losses from drops or frozen fruit, does not dry out on lemon. Pomona Nurseries, Dade City, Fla.

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The Florida . . .
Bond And License Law

BY N. F. LAVIGNE
PUBLICITY DIRECTOR, FLORIDA CITRUS COMMISSION

As a safeguard against unscrupulous and dishonest practices which had cost Florida citrus growers hundreds of thousands of dollars, the legislature in 1935 enacted what is known as the bond and license law. Under this law, persons intending to deal in Florida citrus fruits must obtain a license and post a bond to insure payment of just debts to growers.

The law does not in any way abridge the right of the grower to sell his fruit to whomever he pleases, but it does insure that the dealer to whom the fruit is sold pays for the fruit, providing he is properly licensed, or the grower can file claim for the amount due with the Commissioner of Agriculture. Only those dealers who pay cash for fruit which they purchase and do not buy fruit on credit or consignment are exempt from this provision. Even these, however, are under strict control and must obtain a special license.

The operation of the law is simplicity itself. Any person who plans to deal in Florida citrus fruit files an application with the Florida Citrus Commission, which examines the financial status of the applicant carefully and also goes into his past business reputation. This application must be made each year. Should the Commission feel that the records do not justify a license, the applicant is so notified and provision is made by the law for him to be heard either in person or represented by an attorney at a special meeting of the commission. The Commissioner of Agriculture issues the actual license, and bonds are posted with him. However, he cannot issue a license unless the applicant has first obtained approval by the citrus commission.

Paradoxically, the greatest benefit of this law to growers has not been in the actual collection of debts, but rather in its restraining effect on would-be dishonest buyers. Should any buyer fail to meet his obligations, the grower involved may apply to the Commissioner of Agriculture for redress. In most instances it has been found that the mere threat of making such application has proven sufficient for the buyer to comply with his obligations.

One major problem of the industry, theft of fruit from groves, has been almost entirely eliminated under the system of permits and records required under this law. Prior to 1935, there were numerous instances of actual stealing of fruit from groves and at one time growers found it necessary to band together

(Continued on page 21)

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